

ABSTRACT

According to various aspects of embodiments of the invention, the actual flow rate produced by a metering pump is continuously measured using a positive displacement flow meter. Based on the flow rate reported by the meter, the output of the metering pump is continuously adjusted via a pump controller to achieve a desired set point flow rate. The operator sets a desired flow rate, rather than setting the pump cycle rate, or the output rating per pump cycle to produce an approximate output flow rate. According to some embodiments of aspects of the invention, a fluid feed system commanded to a fluid flow rate set point by a set point signal includes: a metering pump receiving a control signal directing a cycle rate for the metering pump; a fluid flow meter connected to measure a fluid flow rate produced by the metering pump and which provides a fluid flow rate signal; and a metering pump controller responsive to the set point signal and the fluid flow rate signal to adjust the control signal to direct a cycle rate which produces a fluid flow rate equal to the fluid flow rate set point. According to other embodiments of aspects of the invention, there is a method of controlling a fluid flow rate, comprising: displacing an approximately defined quantity of fluid at a rate determined by a control signal; measuring an actual flow rate; and adjusting the control signal to produce a rate of displacing the approximately defined quantity of fluid such that the actual flow rate matches a desired flow rate. According to yet other embodiments of aspects of the invention, a metering pump may be constructed and/or controlled as described above, in a chemical processing facility or a fluid dispenser. The variations described may be interchanged and combined in any suitable manner determined by one implementing an embodiment of the invention.